

Class: II PG

Max.Marks: 60

Major: Biotechnology

Time: 3 Hours

12MBTC16-ENZYMES OF BIOPROCESS TECHNOLOGY

Part-A

10X 1/2= 5

Choose the correct answer

- In Lineweaver-Burk plot, the Y-intercept represents
(a) V_{max} (b) $1/V_{max}$ (c) K_m (d) $1/K_m$
- In enzyme kinetics K_m implies
(a) The substrate concentration that gives one half V_{max}
(b) The dissociation constant for the enzyme substrate complexes
(c) Concentration of enzyme
(d) Half of the substrate concentration required to achieve V_{max}
- The site where enzyme catalyzed reaction takes place is called
(a) active site (b) allosteric site (c) denature site (d) dead site
- Mg^{2+} is an inorganic activator for the enzyme
(a) Phosphatase (b) Carbonic anhydrase (c) Enterokinase (d) Amylase
- The purity of an enzyme at various stages of purification is best measured by
(a) Total protein (b) Total enzyme activity (c) Specific activity of the enzyme
(d) Percent recovery of enzyme
- The selection of immobilization of cell or enzyme depends on
(a) Number of step in the process (b) Cost
(c) Stability and catalytic specificity (d) All of the above
- Batch fermentation is also called as
(a) Closed system (b) Open system
(c) Fed batch system (d) Sub merger system
- The best medium for the production of Penicillin is
(a) nutrient agar (b) corn steep liquor
(c) Sulphite waste liquor (d) whey
- Organisms in a bioreactor receive oxygen through
a. aeration b. fermentation c. inoculation d. agitation
- As agitation increase in an aerobic maintained bioreactor
a. the oxygen transfer coefficient increases
b. the oxygen transfer coefficient decreases
c. the oxygen transfer coefficient not changed
d. the oxygen transfer coefficient changes

Part-B

5x4=20

Answer ALL Questions

Each answer should not exceed 200 words or on one page

11. a. Describe Lineweaver Burk plot.
(OR)
b. Give an account on the kinetics of enzyme inhibition.
12. a. How metal ions are involved in the activation of enzymes.
(OR)
b. Write a short note on allosteric enzymes.
13. a. Explain the procedure for extracting soluble and membrane bound enzymes.
(OR)
b. Mention few biotechnological applications of enzymes.
14. a. Give an account on fed batch and continuous culture.
(OR)
b. Explain media formulation and sterilization.
15. a. Write a note on ON/OFF control and PID control.
(OR)
b. Mention the steps involved in downstream processing for harvesting any product.

Part-C

5x7=35

Answer ALL Questions

Each answer should not exceed 600 words or on one page

16. a. Elaborate on Michaelis-Menten equation.
(OR)
b. Explain the factors which influence the rate of enzyme reactions.
17. a. Write in detail about the mechanism of action of chymotrypsin.
(OR)
b. Elaborate on enzyme specificity.
18. a. How are enzymes purified from natural sources?
(OR)
b. Detail on the production of immobilized enzymes by recombinant DNA technology.
19. a. Summarize on air-lift and packed bed bioreactors.
(OR)
b. Explain the process of microbial production of antibiotic penicillin.
20. a. How to determine oxygen transfer and heat transfer coefficients.
(OR)
b. Describe about chromatographic techniques for enzyme purification.
